

# TEXAS DEPARTMENT OF INSURANCE

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## PRODUCT EVALUATION

Effective October 1, 2013

MU-21

*The following product has been evaluated for compliance with the wind loads specified in the **International Residential Code (IRC)** and the **International Building Code (IBC)**. This product shall be subject to reevaluation **May 2017**.*

*This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.*

*This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code and the Texas Engineering Practice Act.*

**Mulled Aluminum Window and Door Assemblies using Aluminum Vertical Mullions, Non-impact Resistant or Impact Resistant, manufactured by:**

**WinDoor Incorporated**  
**7500 Amsterdam Drive**  
**Orlando, Florida 32832**  
**Telephone: (407) 481-8400**  
**www.windoorinc.com**

will be acceptable in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

## PRODUCT DESCRIPTION

This evaluation report is for mulled window and door assemblies using aluminum vertical mullions manufactured by WinDoor Incorporated. The mulled window and door assemblies evaluated in this report may be either non-impact resistant or impact resistant.

The mulled assembly consists of window and door units mulled together using aluminum vertical mullions. The aluminum vertical mullions may be used as long as the dimensions indicated on the approved drawings of the window and door units are not exceeded. The mullions are secured directly to the rough opening using clips and can be attached to wood, concrete, masonry, steel, or aluminum substrates.

The frames of the window and door units are secured to the extruded aluminum mullion tubes using No. 10 self drilling screws. Extruded aluminum clips are used to secure the aluminum mullion tubes to the wall framing.

This evaluation report contains mulled assemblies using aluminum window and door units manufactured by WinDoor Incorporated that are currently listed in Texas Department of Insurance (TDI) product evaluation reports.

**Mullion Components:**

**Mullion:** Manufactured from 6063-T6 aluminum. The following mullion options are available:

- 2" x 5" x 0.125".
- 2" x 5" x 0.250".
- 2" x 6" x 0.125".
- 2" x 6" x 0.250".
- 2" x 8" x 0.125".
- 2" x 8" x 0.250".
- 4" x 4" x 0.125".
- 4" x 4" x 0.250".
- 4" x 6" x 0.125".
- 4" x 6" x 0.250".
- 4" x 8" x 0.125".
- 4" x 8" x 0.250".
- 6" x 6" x 0.125".
- 6" x 6" x 0.250".

**Clip:** Manufactured from 6105-T5 aluminum. This clip is used to secure the aluminum mullion to the wall framing. The clip dimensions are as follows:

- For 2" x 5" mullions (4" x 4.469" x 0.125").
- For 2" x 6" mullions (4" x 5.469" x 0.125").
- For 2" x 8" mullions (4" x 7.469" x 0.125").
- For 4" x 4" mullions (4" x 3.469" x 0.125").
- For 4" x 6" mullions (4" x 5.469" x 0.125").
- For 4" x 8" mullions (4" x 7.469" x 0.125").
- For 6" x 6" mullions (4" x 5.469" x 0.125").

**LIMITATIONS**

**Design Drawings:** The mullion assembly shall be constructed and installed in accordance with the following design drawings:

- Drawing No. 08-01684, sheets 1 through 4 of 4, titled '2" x 5" x 1/8" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01685, sheets 1 through 4 of 4, titled '2" x 5" x 1/4" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01686, sheets 1 through 4 of 4, titled '2" x 6" x 1/8" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01687, sheets 1 through 4 of 4, titled '2" x 6" x 1/4" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.

- Drawing No. 08-01688, sheets 1 through 4 of 4, titled '2" x 8" x 1/8" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01689, sheets 1 through 4 of 4, titled '2" x 8" x 1/4" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01690, sheets 1 through 4 of 4, titled '4" x 4" x 1/8" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01691, sheets 1 through 4 of 4, titled '4" x 4" x 1/4" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01692, sheets 1 through 4 of 4, titled '4" x 6" x 1/8" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01693, sheets 1 through 4 of 4, titled '4" x 6" x 1/4" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01694, sheets 1 through 4 of 4, titled '4" x 8" x 1/8" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01695, sheets 1 through 4 of 4, titled '4" x 8" x 1/4" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01696, sheets 1 through 4 of 4, titled '6" x 6" x 1/8" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.
- Drawing No. 08-01697, sheets 1 through 4 of 4, titled '6" x 6" x 1/4" Tube Mullion Vertical Impact,' dated July 23, 2012, signed and sealed by Luis R. Lomas, P.E. on July 15, 2013. The stated drawings will be referred to as "Approved Drawings" in this evaluation report. A copy of the approved drawings shall be available at the job site.

**Design Pressure Rating:** The design pressure rating for the mulled assembly is dependent on the mullion load rating based on the mullion span and the dimensions of the window and door units in the mulled assembly, and the design pressure rating for the window and door units in the mulled assembly.

Refer to the approved drawings to determine the mullion load rating for the mulled assembly based on the configuration of the mulled assembly.

**Maximum Sizes:** The height and width of each window and door unit in the mulled assembly shall not exceed the maximum allowable height and width specified on the certification program labels for the windows and doors. In addition, the maximum allowable dimensions for window and door units in the mulled window assembly shall be as specified on the approved drawings.

The following procedure should be used to determine the design pressure rating for the mulled assembly:

1. Determine the tributary width and the mullion span (height) for the mulled assembly. Refer to the mullion configuration sketches on the approved drawings for the mullion span (height) and the tributary width determination. **NOTE:** In no case shall the maximum allowable dimensions of the window and door units, as specified on the certification program labels and in the TDI product evaluation reports, exceed the window and door unit dimensions in the approved drawings.
2. Using the approved drawings, locate the row with the mullion span (height). Locate the column with the tributary width. At the intersection of the row containing the mullion span and the column containing the tributary width, read the mullion load rating (in PSF).
3. Review the design pressure rating on the certification program label and in the TDI product evaluation report for each window and door unit of the mulled assembly.
4. If the design pressure rating for each window and door unit of the mulled assembly is greater than the mullion load rating determined from the table in the approved drawings, then the design pressure rating of the mulled assembly is the design pressure determined from the table in the approved drawings.
5. If the design pressure rating for any of the window and door units is less than the mullion load rating determined from the table in the approved drawings, then the design pressure rating of the mulled assembly shall be the design pressure rating of the lowest rated window and door unit in the assembly.

**Impact Resistance:** The mullions can be used with either non-impact resistant or impact resistant windows and doors. If the mullions are used with non-impact resistant windows and doors, then the mulled assemblies will need to be protected with an impact protective system when installed in areas where windborne debris protection is required. If the mullions are used with impact resistant windows and doors, then the mulled assemblies will not need to be protected with an impact protective system. Refer to the TDI evaluation reports for each of the window and door units in the mulled assembly to determine the locations where the mulled assemblies can be used (ex. Inland I zone only or Inland I and Seaward zones).

**Product Identification:** A certification program label will be affixed to each window and door unit of the mulled assembly. Refer to the TDI evaluation report for each window and door unit in the mulled assembly for the information that must be specified on the certification program label. **NOTE:** The certification program label is for the performance characteristics of the window and door units in the mulled assembly and not for the mulled assembly. The design pressure rating for the mulled assembly is as specified in the Limitations Section of this evaluation report.

## INSTALLATION INSTRUCTIONS

**General:** The mulled assembly shall be installed in accordance with the manufacturer's installation instructions, the approved drawings, and this evaluation report. Detailed drawings and installation instructions are available from the manufacturer.

**Attachment of Window or Door Frames to Mullions:** The window and door unit frames shall be anchored to the aluminum mullions with minimum No. 10 self drilling screws. The fasteners shall be of sufficient length to penetrate a minimum of three threads beyond the aluminum mullion wall. The fasteners shall be located and spaced in accordance with the approved drawings. Refer to the details shown in the approved drawings for the attachment of the window and door units to the mullions.

**Attachment of Mulled Assembly to Wall Framing:** The requirements for the wall framing shall be as specified in the TDI evaluation reports for the window and door units and as specified in the approved drawings. The mulled assembly shall be secured to the wall framing using the type, size, quantity, and spacing of fasteners as specified in the TDI evaluation reports for the window and door units. As a point of reference for locating fasteners at window and door unit corners, where a window or door unit joins with a mullion shall be considered a corner location.

**Attachment of Mullions to Wall Framing:** The mullions shall be secured to the wall framing using the clip. The clip shall be secured to the mullion and to the wall framing as specified in the approved drawings.

**Note:** The manufacturer's installation instructions shall be available on the job site during installation. The approved drawings shall be available on the job site during installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC), the International Building Code (IBC), and the Texas Revisions.